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10/601,525	06/24/2003	Hiroyuki Saito	01306.00099	7538

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FITZPATRICK CELLA HARPER & SCINTO  
30 ROCKEFELLER PLAZA  
NEW YORK, NY 10112

EXAMINER
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MORRISON, THOMAS A

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3653

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/601,525	<b>Applicant(s)</b> SAITO, HIROYUKI	
	<b>Examiner</b> Thomas A. Morrison	<b>Art Unit</b> 3653	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 May 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3,5-7,9-11,13,15-17,19,20,22 and 28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,5-7,9-11,13,15-17,19,20,22 and 28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some    \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>6/27/07</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 10 and 20 are objected to because of the following informalities:  
(1) "the first contact portions" in line 25 of claim 1 should be -- the first contact portion --;  
and (2) "the first contact portions" in line 25 of claim 20 should be -- the first contact portion --. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 5, 6/5, 17, 19 and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,390,700 (Foster et al.).

Regarding claim 1, Figs. 3-5B of the Foster et al. patent show a conveying apparatus (100) comprising:

a conveyance roller (128) having a spindle (126A and 126B);

a driven roller (132) rotating as driven from the conveyance roller (128);

pressing means (130) for pressing the driven roller (132) to the conveyance roller (128);

a bearing (Fig. 5B) for supporting the conveyance roller (128);

driving means (column 4, lines 34-36) for rotating the conveyance roller (128);

and

drive transmitting means (120),

wherein the bearing (Fig. 5B) includes two contact portions for contacting the circumference of the spindle (126A and/or 126B) for supporting the conveyance roller (128), and

wherein if a force exerting on the bearing (Fig. 5B) during stopping is vector  $F_{v0}$ , a force exerting on the bearing (Fig. 5B) during starting up is vector  $F_{v1}$ , and a combined vector of vectors  $F_{v1}$  and  $F_{v0}$  is set as  $F_t$ ,  $F_t$  becomes a vector extending in a direction inclined by angle  $\theta_t$  from the perpendicularly downward direction, and the two contact portions are formed at positions in symmetry with respect to a direction of angle  $\theta_t$  of the vector  $F_t$ . In as much as the bearing structure of the Foster et al. patent has the same geometry as that of the instant application, the bearing of the Foster et al. patent will perform the recited function of claim 1.

Alternatively, in the recitation **wherein if a force exerting on the bearing during stopping is vector  $F_{v0}$ , a force exerting on the bearing during starting up is vector  $F_{v1}$ , and a combined vector of vectors  $F_{v1}$  and  $F_{v0}$  is set as  $F_t$ ,  $F_t$**

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becomes a vector extending in a direction inclined by angle  $\theta_t$  from the perpendicularly downward direction, and the two contact portions are formed at positions in symmetry with respect to a direction of angle  $\theta_t$  of the vector  $F_t$ , the bolded portion of this recitation is a conditional limitation that need **not** ever occur. Thus, this limitation need **not** be given patentable weight. In either case, Foster et al. meets the limitations of claim 1.

Regarding claim 5, Fig. 4 shows that the bearing supports the spindle (126A and 126B) at both sides of the conveyance roller (128).

Regarding claim 6/5, Fig. 5B shows that the two contact portions are in a plane.

Regarding claim 17, Figs. 3-5B show a recording apparatus for forming images on a recording medium, comprising:

a conveyance roller (including 126A and 128) having a spindle (126A);

a driven roller (132) rotating as driven from the conveyance roller (including 126A and 128);

pressing means (130) for pressing the driven roller (132) to the conveyance roller (including 126A and 128);

a bearing (Fig. 5B) for supporting the conveyance roller (including 126A and 128),

driving means (column 4, lines 34-36) for rotating the conveyance roller (including 126A and 128); and

drive transmitting means (120),

wherein the bearing (Fig. 5B) includes two contact portions for contacting the circumference of the spindle (126A) for supporting the conveyance roller (including 126A and 128), and

wherein, if a force exerting to the bearing (Fig. 5B) during stopping is vector  $F_{v0}$ , a force exerting to the bearing (Fig. 5B) during starting up is vector  $F_{v1}$ , and the combined vector of vectors  $F_{v1}$  and  $F_{v0}$  is set as  $F_t$ ,  $F_t$  becomes a vector extending in a direction inclined by angle  $\theta_t$  from the perpendicularly downward direction, and the two contact portions are formed at positions in symmetry with respect to a direction of angle  $\theta_t$  of the vector  $F_t$ . In as much as the geometry of the bearing (Fig. 5B) of the Foster et al. patent is the same as that of the instant application, the bearing (Fig. 5B) of the Foster et al. patent has the vector limitations as claimed.

Alternatively, in the recitation **wherein, if a force exerting to the bearing during stopping is vector  $F_{v0}$ , a force exerting to the bearing during starting up is vector  $F_{v1}$ , and the combined vector of vectors  $F_{v1}$  and  $F_{v0}$  is set as  $F_t$ ,  $F_t$  becomes a vector extending in a direction inclined by angle  $\theta_t$  from the perpendicularly downward direction, and the two contact portions are formed at positions in symmetry with respect to a direction of angle  $\theta_t$  of the vector  $F_t$** , the bolded portion of this recitation is a conditional limitation that need **not** ever occur. Thus, this limitation need **not** be given patentable weight. In either case, Foster et al. meets the limitations of claim 17.

Regarding claim 19, Fig. 5B shows that the two contact portions are in a plane.

Regarding claim 28, Figs. 3-5B show a conveying apparatus comprising:

a conveyance roller (including 126A and 128) having a spindle (126A);

a driven roller (132) rotating as driven from the conveyance roller (including 126A and 128);

pressing means (130) for pressing the driven roller (132) to the conveyance roller (including 126A and 128);

a bearing (Fig. 5B) for supporting the conveyance roller (including 126A and 128),

driving means (column 4, lines 34-36) for rotating the conveyance roller (including 126A and 128); and

drive transmitting means (120),

wherein the bearing (Fig. 5B) includes two contact portions for contacting the circumference of the spindle (126A) for supporting the conveyance roller (including 126A and 128), and

wherein, if a force exerting on the bearing (Fig. 5B) during acceleration is vector  $F_{v2}$ , a force exerting on the bearing (Fig. 5B) during deceleration is vector  $F_{v4}$ , and the combined vector of vectors  $F_{v2}$  and  $F_{v4}$  is set as  $F_t$ ,  $F_t$  becomes a vector extending in a direction inclined by angle  $\theta_t$  from the perpendicularly downward direction, and

the two contact portions are formed at positions in symmetry with respect to a direction of angle  $\theta_t$  of the vector  $F_t$ . In as much as the geometry of the bearing (Fig. 5B) of the Foster et al. patent is the same as that of the instant application, the bearing (Fig. 5B) of the Foster et al. patent has the vector limitations as claimed.

Alternatively, in the recitation **wherein, if a force exerting on the bearing during acceleration is vector  $F_{v2}$ , a force exerting on the bearing during deceleration is vector  $F_{v4}$ , and the combined vector of vectors  $F_{v2}$  and  $F_{v4}$  is set as  $F_t$** ,  $F_t$  becomes a vector extending in a direction inclined by angle  $\theta_t$  from the perpendicularly downward direction, and the two contact portions are formed at positions in symmetry with respect to a direction of angle  $\theta_t$  of the vector  $F_t$ ., the bolded portion of this recitation is a conditional limitation that need **not** ever occur. Thus, this limitation need **not** be given patentable weight. In either case, Foster et al. meets the limitations of claim 28.

3. Claims 1, 5, 6/5, 7, 9-10, 13, 15-17, 19-20, 22 and 28 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,769,683 (Hiramatsu).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.



Regarding claim 1, Figs. 1 and 3-4 of the Hiramatsu patent show a conveying apparatus (50) comprising:

- a conveyance roller (14) having a spindle (14a);
- a driven roller (21) rotating as driven from the conveyance roller (14);
- pressing means (22) for pressing the driven roller (21) to the conveyance roller (14);
- a bearing (20) for supporting the conveyance roller (14);
- driving means (9) for rotating the conveyance roller (14); and
- drive transmitting means (i.e., gear near numeral 9),

wherein the bearing (20) includes two contact portions (20c) for contacting the circumference of a spindle (14a) for supporting the conveyance roller (14), and

wherein if a force exerting on the bearing (20) during stopping is vector  $Fv0$ , a force exerting on the bearing (20) during starting up is vector  $Fv1$ , and a combined vector of vectors  $Fv1$  and  $Fv0$  is set as  $Ft$ ,  $Ft$  becomes a vector extending in a direction inclined by angle  $\theta_t$  from the perpendicularly downward direction, and the two contact portions (20c) are formed at positions in symmetry with respect to a direction of angle  $\theta_t$  of the vector  $Ft$ . In as much as the bearing structure of the Hiramatsu patent has the same geometry as that of the instant application, the bearing of the Hiramatsu patent will perform the recited function of claim 1.

Alternatively, in the recitation wherein if a force exerting on the bearing during stopping is vector  $F_{v0}$ , a force exerting on the bearing during starting up is vector  $F_{v1}$ , and a combined vector of vectors  $F_{v1}$  and  $F_{v0}$  is set as  $F_t$ ,  $F_t$  becomes a vector extending in a direction inclined by angle  $\theta_t$  from the perpendicularly downward direction, and the two contact portions are formed at positions in symmetry with respect to a direction of angle  $\theta_t$  of the vector  $F_t$ , the bolded portion of this recitation is a conditional limitation that need **not** ever occur. Thus, this limitation need **not** be given patentable weight. In either case, Hiramatsu meets the limitations of claim 1.

Regarding claim 5, column 4, line 66 to column 5, line 4 and column 5, lines 47-49 disclose that the bearing (20) supports the spindle (14a) at both sides of the conveyance roller (14).

Regarding claim 6/5, Figs. 3-4 show that the two contact portions (20c) are in a plane.

Regarding claim 7, Figs. 1 and 3-4 show a conveying apparatus comprising:

- a conveyance roller (14) having a spindle (14a);
- a driven roller (21) rotating as driven from the conveyance roller (14);
- pushing means (22) for pushing the driven roller (21) to the conveyance roller (14);
- a bearing (20) for supporting the conveyance roller (14);

a chassis (Fig. 1) for supporting the conveyance roller (14);

driving means (9) for rotating the conveyance roller (14); and

drive transmitting means (i.e., gear near numeral 9 in Fig. 1),

wherein the chassis (Fig. 1) includes two contact portions for supporting the circumference of the bearing (20), and

wherein if a force exerting on the bearing (20) during stopping is vector  $Fv0$ , a force exerting on the bearing (20) during starting up is vector  $Fv1$ , and a combined vector of vectors  $Fv1$  and  $Fv0$  is set as  $Ft$ ,  $Ft$  becomes a vector extending in a direction inclined by angle  $\theta_t$  from the perpendicularly downward direction, and the two contact portions are formed at positions in symmetry with respect to a direction of angle  $\theta_t$  of the vector  $Ft$ . Fig. 1 shows one of the bearings (20) installed in the chassis such that the chassis surrounds the bearing. As such, there are at least two contact portions, as claimed. With the geometry of the bearing (20) of the Hiramatsu patent being the same as that of the instant application, the bearing of the Hiramatsu patent will have the vector limitations as claimed.

Alternatively, in the recitation **wherein if a force exerting on the bearing (20) during stopping is vector  $Fv0$ , a force exerting on the bearing (20) during starting up is vector  $Fv1$ , and a combined vector of vectors  $Fv1$  and  $Fv0$  is set as  $Ft$ ,  $Ft$  becomes a vector extending in a direction inclined by angle  $\theta_t$  from the perpendicularly downward direction, and the two contact portions are formed at positions in symmetry with respect to a direction of angle  $\theta_t$  of the vector  $Ft$ , the**

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bolded portion of this recitation is a conditional limitation that need **not** ever occur.

Thus, this limitation need **not** be given patentable weight. In either case, Hiramatsu meets the limitations of claim 7.

Regarding claims 9, Figs. 3-4 show that the two contact portions (20c) are in a plane.

Regarding claim 10, Figs. 1 and 3-4 show a conveying apparatus comprising:

a conveyance roller (14) having a spindle (14a);  
a driven roller (21) rotating as driven from the conveyance roller (14);  
pushing means (22) for pushing the driven roller (21) to the conveyance roller (14);

a bearing (20) for supporting the conveyance roller (14);  
a chassis (Fig. 1) for supporting the conveyance roller (14);  
driving means (9) for rotating the conveyance roller (14); and  
drive transmitting means (i.e., the gear near numeral 9 in Fig. 1),

wherein the bearing (20) includes first and second contact portions (20c and 20c) for contacting the conveyance roller (14),

wherein the chassis (Fig. 1) includes third and fourth contact portions for supporting the circumference of the bearing (20), and

wherein if a force exerting on the bearing during stopping is vector  $F_{v0}$ , a force exerting on the bearing during starting up is vector  $F_{v1}$  and the combined vector of vectors  $F_{v1}$  and  $F_{v0}$  is set as  $F_t$ ,  $F_t$  becomes a vector extending in a direction inclined by angle  $\theta_t$  from the perpendicularly downward direction, the first contact portions and the second contact portion are formed at positions in symmetry with respect to a direction of angle  $\theta_t$  of the vector  $F_t$ , and the third contact portion and the fourth contact portion are formed at positions in symmetry with respect to a direction of angle  $\theta_t$  of the vector  $F_t$ . Fig. 1 shows one of the bearings (20) installed in the chassis such that the chassis surrounds the bearing. As such, there are at least third and fourth contact portions, as claimed.

More specifically, in the recitation **wherein if a force exerting on the bearing during stopping is vector  $F_{v0}$ , a force exerting on the bearing during starting up is vector  $F_{v1}$  and the combined vector of vectors  $F_{v1}$  and  $F_{v0}$  is set as  $F_t$ ,  $F_t$  becomes a vector extending in a direction inclined by angle  $\theta_t$  from the perpendicularly downward direction, the first contact portions and the second contact portion are formed at positions in symmetry with respect to a direction of angle  $\theta_t$  of the vector  $F_t$ , and the third contact portion and the fourth contact portion are formed at positions in symmetry with respect to a direction of angle  $\theta_t$  of the vector  $F_t$ , the bolded portion of this recitation is a conditional limitation that need **not** ever occur.** Thus, this limitation need **not** be given patentable weight.

Regarding claim 13, column 4, line 66 to column 5, line 4 and column 5, lines 47-49 and Figs. 3-4 disclose that the conveyance roller (14) has the spindle (14a)

supported by the bearing (20) and a roller portion (outer surface of roller in Figs. 3-4) for conveying performance, and the bearing (20) supports the spindle (14a) at both sides of the conveyance roller (14).

Regarding claims 15, Figs. 1 and 3-4 show that the first and second contact portions of the bearing (20) are in a plane and the third and fourth contact portions of the chassis (Fig. 1) are in a plane.

Regarding claims 16, Figs. 1 and 3-4 show that a contact portion of the bearing (20) and a contact portion of the chassis (Fig. 1) are located on a same line passing through the center of the conveyance roller (14). Again, the chassis surrounds the bearing, so it has at least two contact points that meet the limitations. Also, the bearing (20) has the same geometry as that of the instant application. Thus, the bearing (20) also meets the limitations.

Regarding claim 17, Figs. 1 and 3-4 show a recording apparatus (50) for forming images on a recording medium, comprising:

a conveyance roller (including 14 and 14a) having a spindle (14a);

a driven roller (21) rotating as driven from the conveyance roller (including 14 and 14a);

pressing means (22) for pressing the driven roller (21) to the conveyance roller (including 14 and 14a);

a bearing (20) for supporting the conveyance roller (including 14 and 14a),

driving means (9) for rotating the conveyance roller (including 14 and 14a); and

drive transmitting means (i.e., the gear near numeral 9 in Fig. 1),

wherein the bearing (20) includes two contact portions (20c) for contacting the circumference of the spindle (14a) for supporting the conveyance roller (including 14 and 14a), and

wherein, if a force exerting to the bearing (20) during stopping is vector  $F_{v0}$ , a force exerting to the bearing (20) during starting up is vector  $F_{v1}$ , and the combined vector of vectors  $F_{v1}$  and  $F_{v0}$  is set as  $F_t$ ,  $F_t$  becomes a vector extending in a direction inclined by angle  $\theta_t$  from the perpendicularly downward direction, and the two contact portions (20c) are formed at positions in symmetry with respect to a direction of angle  $\theta_t$  of the vector  $F_t$ . In as much as the geometry of the bearing (20) of the Hiramatsu patent is the same as that of the instant application, the bearing (20) of the Hiramatsu patent has the vector limitations as claimed.

Alternatively, in the recitation **wherein, if a force exerting to the bearing during stopping is vector  $F_{v0}$ , a force exerting to the bearing during starting up is vector  $F_{v1}$ , and the combined vector of vectors  $F_{v1}$  and  $F_{v0}$  is set as  $F_t$** ,  $F_t$  becomes a vector extending in a direction inclined by angle  $\theta_t$  from the perpendicularly downward direction, and the two contact portions are formed at positions in symmetry with respect to a direction of angle  $\theta_t$  of the vector  $F_t$ , the bolded portion of this recitation is a conditional limitation that need **not** ever occur.

Thus, this limitation need **not** be given patentable weight. In either case, Hiramatsu meets the limitations of claim 17.

Regarding claim 19, Figs. 1 and 3-4 show that the two contact portions (20c) are in a plane.

Regarding claim 20, Figs. 1 and 3-4 show a recording apparatus (50) for forming images on a recording medium, comprising:

- a conveyance roller (including 14 and 14a) having a spindle (14a);

- a driven roller (21) rotating as driven from the conveyance roller (including 14 and 14a);

- pushing means (22) for pushing the driven roller (21) to the conveyance roller (including 14 and 14a);

- a bearing (20) for supporting the conveyance roller (including 14 and 14a);

- a chassis (Fig. 1) for supporting the conveyance roller (including 14 and 14a),

- driving means (9) for rotating the conveyance roller (including 14 and 14a); and

- drive transmitting means (i.e., the gear near numeral 9 in Fig. 1),

wherein the bearing (20) includes first and second contact portions (20c) for contacting the conveyance roller (i.e., contacting 14a of the conveyance roller),



wherein the chassis (Fig. 1) includes third and fourth contact portions for supporting the circumference of the bearing (20), and

wherein, if a force exerting on the bearing during stopping is vector  $F_{v0}$ , a force exerting on the bearing during starting up is vector  $F_{v1}$ , and the combined vector of vectors  $F_{v1}$  and  $F_{v0}$  is set as  $F_t$ ,  $F_t$  becomes a vector extending in a direction inclined by angle  $\theta_t$  from the perpendicularly downward direction, the first contact portions and the second contact portion are formed at positions in symmetry with respect to a direction of angle  $\theta_t$  of the vector  $F_t$ , and the third contact portion and the fourth contact portion are formed at positions in symmetry with respect to a direction of angle  $\theta_t$  of the vector  $F_t$ . Fig. 1 shows one of the bearings (20) installed in the chassis such that the chassis surrounds the bearing. As such, there are at least third and fourth contact portions, as claimed.

More specifically, in the recitation **wherein, if a force exerting on the bearing during stopping is vector  $F_{v0}$ , a force exerting on the bearing during starting up is vector  $F_{v1}$ , and the combined vector of vectors  $F_{v1}$  and  $F_{v0}$  is set as  $F_t$ ,  $F_t$  becomes a vector extending in a direction inclined by angle  $\theta_t$  from the perpendicularly downward direction, the first contact portions and the second contact portion are formed at positions in symmetry with respect to a direction of angle  $\theta_t$  of the vector  $F_t$ , and the third contact portion and the fourth contact portion are formed at positions in symmetry with respect to a direction of angle  $\theta_t$  of the vector  $F_t$** , the bolded portion of this recitation is a conditional limitation that need **not** ever occur. Thus, this limitation need **not** be given patentable weight.

Regarding claim 22, Figs. 3-4 show that the two contact portions (20c) are in a plane.

Regarding claim 28, Figs. 1 and 3-4 show a conveying apparatus comprising:

a conveyance roller (including 14 and 14a) having a spindle (14a);

a driven roller (21) rotating as driven from the conveyance roller (including 14 and 14a);

pressing means (22) for pressing the driven roller (21) to the conveyance roller (including 14 and 14a);

a bearing (20) for supporting the conveyance roller (including 14 and 14a),

driving means (9) for rotating the conveyance roller (including 14 and 14a); and

drive transmitting means (i.e., the gear near numeral 9 in Fig. 1),

wherein the bearing (20) includes two contact portions (20c) for contacting the circumference of the spindle (14a) for supporting the conveyance roller (including 14 and 14a), and

wherein, if a force exerting on the bearing (20) during acceleration is vector  $F_{v2}$ , a force exerting on the bearing (20) during deceleration is vector  $F_{v4}$ , and the combined vector of vectors  $F_{v2}$  and  $F_{v4}$  is set as  $F_t$ ,  $F_t$  becomes a vector extending in a direction inclined by angle  $\theta_t$  from the perpendicularly downward direction, and the two contact portions (20c) are formed at positions in symmetry with respect to a direction of

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angle  $\theta_t$  of the vector  $F_t$ . In as much as the geometry of the bearing (20) of the Hiramatsu patent is the same as that of the instant application, the bearing (20) of the Hiramatsu patent has the vector limitations as claimed.

Alternatively, in the recitation **wherein, if a force exerting on the bearing during acceleration is vector  $F_{v2}$ , a force exerting on the bearing during deceleration is vector  $F_{v4}$ , and the combined vector of vectors  $F_{v2}$  and  $F_{v4}$  is set as  $F_t$** ,  $F_t$  becomes a vector extending in a direction inclined by angle  $\theta_t$  from the perpendicularly downward direction, and the two contact portions are formed at positions in symmetry with respect to a direction of angle  $\theta_t$  of the vector  $F_t$ , the bolded portion of this recitation is a conditional limitation that need **not** ever occur. Thus, this limitation need **not** be given patentable weight.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3, 6/3 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,769,683 (Hiramatsu).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome

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by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(I)(1) and § 706.02(I)(2).

With regard to claims 3 and 11, the Hiramatsu et al. patent discloses the claimed invention except for the diameter of the spindle (14a) being the same as the diameter of the conveyance roller (14). It would have been an obvious matter of design choice to select the diameter of the spindle (14a) to be the same as the diameter of the conveyance roller (14), since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955). One of ordinary skill in the art would have been motivated to select a diameter of the spindle (14a) to be the same as that of the conveyance roller (14) in order to reduce the amount of machining and/or finishing required for the roller and spindle, which would reduce the manufacturing cost.

With regard to claim 6/3, Figs. 1 and 3-4 show that the two contact portions (20c) are in a plane.

5. Claims 3 and 6/3 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,390,700 (Foster et al.).

With regard to claim 3, the Foster et al. patent discloses the claimed invention except for the diameter of the spindle (126a) being the same as the diameter of the conveyance roller (128). It would have been an obvious matter of design choice to select the diameter of the spindle (126a) to be the same as the diameter of the conveyance roller (128), since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955). One of ordinary skill in the art would have been motivated to select a diameter of the spindle (126a) to be the same as that of the conveyance roller (128) in order to reduce the amount of machining and/or finishing required for the roller and spindle, which reduces the manufacturing cost.

With regard to claim 6/3, Fig. 5B shows that the two contact portions are in a plane.

### ***Response to Arguments***

6. Applicant's arguments filed 5/18/2007 have been fully considered but they are not persuasive. Applicant argues that

Hiramatsu describes an image recording apparatus that includes a conveying roller 14 and a pinch roller 21. Conveying roller 14 is rotatably supported by a bearing 20, which supports roller shaft portion 14a. As shown in Figure 3, shaft portion 14a is stabilized to be in tangential

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contact with two bearing arc portions 20a of bearing 20 at contact lines 20c. Hiramatsu includes no discussion or suggestion regarding contact positions of vector forces during starting up, stopping, acceleration or deceleration. Accordingly, Hiramatsu does not disclose or suggest that two contact portions are formed at positions in symmetry with respect to a direction of the angle of the combined vector, as is variously recited in the independent claims. Accordingly, Hiramatsu fails to disclose or suggest important features of the present invention recited in the independent claims.

With regard to independent claim 1, in as much as the bearing structure of the Hiramatsu patent has the same geometry as that of the instant application, the bearing of the Hiramatsu patent will perform the recited function of claim 1.

Alternatively, in independent claim 1 in the recitation **wherein if a force exerting on the bearing during stopping is vector  $F_{v0}$ , a force exerting on the bearing during starting up is vector  $F_{v1}$ , and a combined vector of vectors  $F_{v1}$  and  $F_{v0}$  is set as  $F_t$** ,  $F_t$  becomes a vector extending in a direction inclined by angle  $\theta_t$  from the perpendicularly downward direction, and the two contact portions are formed at positions in symmetry with respect to a direction of angle  $\theta_t$  of the vector  $F_t$ , the bolded portion of this recitation is a conditional limitation that need **not** ever occur. Thus, this limitation need **not** be given patentable weight. In either case, Hiramatsu meets the limitations of claim 1.

With regard to independent claim 7, in as much as the bearing structure of the Hiramatsu patent has the same geometry as that of the instant application, the bearing of the Hiramatsu patent will perform the recited function of claim 7.

Alternatively, in independent claim 7 in the recitation **wherein if a force exerting on the bearing (20) during stopping is vector  $F_{v0}$ , a force exerting on the bearing (20) during starting up is vector  $F_{v1}$ , and a combined vector of vectors  $F_{v1}$  and  $F_{v0}$  is set as  $F_t$** ,  $F_t$  becomes a vector extending in a direction inclined by angle  $\theta_t$  from the perpendicularly downward direction, and the two contact portions are formed at positions in symmetry with respect to a direction of angle  $\theta_t$  of the vector  $F_t$ , the bolded portion of this recitation is a conditional limitation that need **not** ever occur. Thus, this limitation need **not** be given patentable weight. In either case, Hiramatsu meets the limitations of claim 7.

With regard to independent claim 10 in the recitation **wherein if a force exerting on the bearing during stopping is vector  $F_{v0}$ , a force exerting on the bearing during starting up is vector  $F_{v1}$  and the combined vector of vectors  $F_{v1}$  and  $F_{v0}$  is set as  $F_t$** ,  $F_t$  becomes a vector extending in a direction inclined by angle  $\theta_t$  from the perpendicularly downward direction, the first contact portions and the second contact portion are formed at positions in symmetry with respect to a direction of angle  $\theta_t$  of the vector  $F_t$ , and the third contact portion and the fourth contact portion are formed at positions in symmetry with respect to a direction of angle  $\theta_t$  of the vector  $F_t$ , the bolded portion of this recitation is a conditional limitation that need **not** ever occur. Thus, this limitation need **not** be given patentable weight.

With regard to independent claim 17, in as much as the bearing structure of the Hiramatsu patent has the same geometry as that of the instant application, the bearing of the Hiramatsu patent will perform the recited function of claim 17.

Alternatively, in independent claim 17 in the recitation **wherein, if a force exerting to the bearing during stopping is vector  $F_{v0}$ , a force exerting to the bearing during starting up is vector  $F_{v1}$ , and the combined vector of vectors  $F_{v1}$  and  $F_{v0}$  is set as  $F_t$** ,  $F_t$  becomes a vector extending in a direction inclined by angle  $\theta_t$  from the perpendicularly downward direction, and the two contact portions are formed at positions in symmetry with respect to a direction of angle  $\theta_t$  of the vector  $F_t$ , the bolded portion of this recitation is a conditional limitation that need **not** ever occur. Thus, this limitation need **not** be given patentable weight. In either case, Hiramatsu meets the limitations of claim 17.

With regard to independent claim 20 in the recitation **wherein, if a force exerting on the bearing during stopping is vector  $F_{v0}$ , a force exerting on the bearing during starting up is vector  $F_{v1}$ , and the combined vector of vectors  $F_{v1}$  and  $F_{v0}$  is set as  $F_t$** ,  $F_t$  becomes a vector extending in a direction inclined by angle  $\theta_t$  from the perpendicularly downward direction, the first contact portions and the second contact portion are formed at positions in symmetry with respect to a direction of angle  $\theta_t$  of the vector  $F_t$ , and the third contact portion and the fourth contact portion are formed at positions in symmetry with respect to a direction of angle  $\theta_t$  of the



vector  $F_t$ , the bolded portion of this recitation is a conditional limitation that need not ever occur. Thus, this limitation need not be given patentable weight.

With regard to independent claim 28, in as much as the bearing structure of the Hiramatsu patent has the same geometry as that of the instant application, the bearing of the Hiramatsu patent will perform the recited function of claim 28.

Alternatively, in independent claim 28 in the recitation **wherein, if a force exerting on the bearing during acceleration is vector  $F_{v2}$ , a force exerting on the bearing during deceleration is vector  $F_{v4}$ , and the combined vector of vectors  $F_{v2}$  and  $F_{v4}$  is set as  $F_t$** ,  $F_t$  becomes a vector extending in a direction inclined by angle  $\theta_t$  from the perpendicularly downward direction, and the two contact portions are formed at positions in symmetry with respect to a direction of angle  $\theta_t$  of the vector  $F_t$ ., the bolded portion of this recitation is a conditional limitation that need **not** ever occur. Thus, this limitation need **not** be given patentable weight.

### ***Conclusion***

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas A. Morrison whose telephone number is (571) 272-7221. The examiner can normally be reached on M-F, 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Mackey can be reached on (571) 272-6916. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

7/22/2007

  
PATRICK MACKEY  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3600